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COVID-19 Wastewater Monitoring Approaches Universal Coverage of University of Maine System Residential Student Population for Spring Semester

22 JAN 2021

With expansion of wastewater testing to the University of Maine at Presque Isle and Town of Farmington, coverage will be in place for 97% of University of Maine System residential students. University of New England now participating in biweekly sampling program with UMaine's in-house wastewater testing lab.

Orono, Maine — The University of Maine System has expanded its COVID-19 wastewater monitoring program for the January-May 2021 semester, adding additional sample collection sites and increasing sampling and testing frequency to more closely track the presence of the virus on UMS campuses and in surrounding communities.

Wastewater samples will be collected twice weekly at the University of Maine in Orono, University of Maine at Fort Kent and University of Maine at Presque Isle, and on the University of Southern Maine Gorham campus. The wastewater testing program will also analyze samples collected at the municipal wastewater facilities in the towns of Orono and Farmington, as well as from the University of New England Biddeford campus.

The University of Maine Presque Isle and the Town of Farmington are new sites for this semester, while wastewater samples from UMaine, UMFK, USM-Gorham and the town of Orono were analyzed once weekly during the fall semester. Wastewater monitoring for the spring semester will cover 3,852 residence hall students in the spring semester, 97% of the anticipated population of 3,986 students expected to be living on campus.

Last week the University of Maine System announced it would be implementing universal, weekly testing for the approximately 16,000 university students, faculty, and staff who will have an on-campus experience in the spring semester. The University of Maine System will conduct about 250,000 asymptomatic tests for COVID-19 this spring to identify and isolate infection, approximately a six-fold increase in COVID-19 testing volume compared to the fall semester.

Wastewater samples are tested for the presence of SARS-CoV-2, the virus that causes COVID-19, in associate professor of microbiology Robert Wheeler's biosafety level 2 lab in Orono. The Wheeler Lab coordinates and conducts sample collection and lab testing for all participating sites with support from campus and municipal staff, and can typically return results in 24 hours.

Results of campus wastewater testing for the presence of SARS-CoV-2 will be published weekly on the Together for Maine website that also tracks asymptomatic screening results.

"Thanks to strong internal support and a great partnership with Bangor-based Haley Ward this fall, we were able to work through sampling logistics and build capacity and refine procedures in our lab to prepare to handle more samples this semester," said Wheeler, a member of the UMS Scientific Advisory Board. "From the beginning, our goal was to develop an internal monitoring program that would allow us to sample frequently and expedite results. This is now possible thanks to the hard work of the Wastewater Testing Group team, and the hiring of new sampling and analysis technicians. We're glad to support the Together for Maine principles and the UMS commitment to safe campuses and communities."

The University of Maine System began conducting wastewater surveillance in August 2020, partnering with engineering, environmental sciences and survey firm Haley Ward (previously called CES, Inc.), for sample collection and coordination of testing with an outside lab. The Wheeler Lab conducted parallel lab testing on wastewater samples in August and September before taking over all lab analysis in October. UMS now manages all aspects of the wastewater monitoring program with consulting support from Haley Ward.

To support the sample collection and laboratory analysis, two new technicians were hired. Claudia Desjardins began the lab testing last fall during her final semester as an animal and veterinary sciences major at UMaine. She was hired full time starting in January to conduct wastewater analysis in the Wheeler Lab. Melissa Chisholm, who also began in January, is performing and coordinating sample collection at the four campuses. Chisholm is a UMaine Ph.D. candidate in analytical chemistry, coming to the university in 2014 after completing a bachelor's degree in chemistry at Boston University.

The wastewater surveillance plan and ongoing monitoring is overseen by the University of Maine System Scientific Advisory Board, established by Chancellor Dannel Malloy to help guide the University System's safe return planning. The board is chaired by University of Maine President Joan Ferrini-Mundy.

"The expansion of wastewater testing reflects the breadth of our public health commitment and is a key component of our multifaceted approach to identifying and containing COVID-19 on campuses and in Maine communities," said Chancellor Malloy. "We were able to stay together throughout the fall term and we enter the new semester with new monitoring tools that will help us keep an even closer watch on the virus, respond quickly when needed, and safely maintain our academic operations."

"These enhancements to our wastewater testing program are a testament to UMaine's incredible research talent and facilities, and the power of collaboration between dedicated faculty, students and staff across the system," said President Ferrini-Mundy. "It is because of their hard work, and the hard work and leadership of many others, that we are preparing to come together again to learn and work on University of Maine campuses."

About wastewater testing

Quantitative SARS-CoV-2 measurements in untreated sewage can provide information on changes in total COVID-19 infection in the contributing community. Research also suggests that increases in viral material in community wastewater occur before signs or symptoms of COVID-19. This can help to provide an early warning of an increase in the number of infected people within a specific community, including those who are infected but don't develop symptoms. Wastewater observation works because infected people may start shedding virus in their stool a few days before they show any symptoms of disease, or even if they never show symptoms.

The Centers for Disease Control and Prevention, the U.S. Department of Health and Human Services and other agencies have initiated the National Wastewater Surveillance System to help public health officials understand the extent of COVID-19 infections in communities.

For more information about University of Maine System wastewater testing, please review our FAQs.

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